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environmental radioactivity monitoring by the use of shielded portable HPGe detector

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The ENEA Traceability Laboratory in Bologna utilizes a portable HPGe gamma spectrometer Trans-SPEC-DX-100T for in situ monitoring campaigns and to evaluate the possible presence of radioisotopes in the environment (e.g. waste assay measurements, emergency response, nuclear safeguards inspection).

The instrument is also used in the laboratory to characterize radioisotope concentrations in samples from different sources: ie contaminated environmental soils, food with different radioisotopes absorption rates, nuclear materials.

The gamma monitoring technique is allowed to be used during an On-Site Inspection by the Treaty. The specific instrumentation to be used has to be included in the draft list of the equipment for OSI.

A good characterization of the monitored site needs the capability to observe a small variation on the activity concentrations and the capacity to lower the background contribution.

In order to use the instrument to its full capacity and potential, a transportable shielding has been designed and built-in collaboration with the University of Ferrara, taking into account a good balance between transportability and performance of the system.

The results of a monitoring campaign with and without shielding will be shown and the need to include shielding in the draft list of auxiliary equipment will be discussed.

Promotional text

How to cope with mobility and transportability of on-site monitoring and instrumentation performance

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